

orti. *Calyx* liber, gamophyllus, persistens, 5-merus, v. varius, deciduus, spathaceus, v. bipartitus. *Corolla* hypogyna, gamopetala, subcampanulata, infundibuliformis, v. hypocraterimorpha; limbo 5-lobo, subæquali v. subbilabiato; lobis per æstivationem duplicato-plicatis v. subplicato-imbricatis. *Stamina* 4, cum rudimento quinti, corollæ tubo inserta, ejusdem laciniis alterna, exserta v. inclusa. *Filamenta* simplicia. *Antheræ* biloculares. *Discus* hypogynus glandulosus, ovarii basin cingens, sæpè obsoletus. *Ovarium* liberum, 1-, 2-, v. rariùs 4- v. pluriloculare. *Ovula* indefinita. *Stylus* terminalis, simplex. *Stigma* bilobum, v. bilamellatum. *Fructus* baccatus 1-, 2-, v. rariùs 4- v. plurilocularis. *Semina* plurima, aptera. *Albumen* nullum. *Embryo* rectus, v. subcurvatus.

Crescentiaceæ thus defined inhabit chiefly the tropical and subtropical regions of America and Africa: they are not found in Europe or Australia, and only one species is met with in Asia. Several species are cultivated, and have become naturalized in different parts of the Old World; none possess any poisonous qualities. As far as at present known, the Order is composed of about thirty species, distributed under nine genera.

Dr. Seemann next adverts to the genus *Oxycladus*, described by Mr. Miers in the twenty-first volume of the Society's 'Transactions' and referred by that gentleman to *Bignoniaceæ*, of which he regards *Crescentiaceæ* as one division, while he forms another division of the genus *Oxycladus*. Dr. Seemann, however, states his opinion that *Oxycladus* has nothing to do with *Bignoniaceæ*, even in the widest sense, but belongs to *Myoporaceæ*, being allied to *Stenochilus*, R. Br., and *Bontia*, L.

In conclusion, the author states that he distributes the true *Crescentiaceæ* into two sectional subdivisions, as follows:—

1. TANÆCIEÆ. Calyce persistente, regulari, 5-fido—*Colea*, *Periblema*, *Phyllarthron*, *Tanæcium*, *Tripinnaria*, *Sotor* (?).
2. CRESCENTIEÆ. Calyce deciduo, irregulari, spathaceo v. bipartito—*Parmentiera*, *Crescentia*, *Kigelia*.

He adds that all the plants belonging to the Order have a tendency to form winged petioli; and thinks it not improbable that the simple-leaved species may hereafter be looked upon as plants with abortive leaflets and highly-developed phyllodia. The ovary too, he remarks, in all *Crescentiaceæ*, is unilocular, with a truly parietal placentation; and it is only when the placentæ meet, as they generally do when the fruit approaches maturity, that the placentation appears to be axile, and the fruit two- or more celled.

MISCELLANEOUS.

On the Development of Cœnurus cerebralis. By Prof. VAN BENEDEN.
Extracts from letters to M. DE QUATREFAGES.

THE following is the result of the experiments on *Cœnurus*. You know that M. Küchenmeister had a dog which had been fed with *Cœnuri* at the beginning of March in the present year, and which had been passing *proglottides*. This dog was killed on the 24th

May, and M. Küchenmeister forwarded some of the *Tænia*s of the *Cœnurus* to Louvain, Copenhagen, and Giessen. They arrived at Louvain alive on the 27th May. They were immersed in the white of an egg. I kept them alive for eight days, by renewing the white of egg every day.

On the day of their arrival, at nine o'clock in the morning, half a proglottis was given to each of two young sheep, about two months old, and in the afternoon each of them took an entire proglottis. On the 3rd June, one of them, marked No. 1, swallowed another proglottis.

The first symptoms of vertigo made their appearance on the 13th June; on the morning of the 15th, I was told that the one marked No. 2 was dying. Its head was burning hot, its eyes red, its legs bent under its body; it beat with its head against the railings, and turned it constantly in one direction. It was then killed.

The upper and lower surfaces of the two hemispheres of the brain presented very irregular grooves, which might be taken for the deserted tubes of certain Annelida; these have been already mentioned by M. Küchenmeister. There were about a dozen of them. At the end of these tubes there were the same number of *Cœnuri*, almost all lodged in the cortical substance of the brain. Some of them were removed with the membranes of the brain. They were nearly of the same size, about three or four millimetres in diameter. These *Cœnuri* as yet only consisted of a simple milk-white vesicle filled with fluid. The heads (*scolex*) were not yet to be seen. It is the *hexacanthous* embryo (*proscœlex*) a little more developed than at its exit from the egg.

These observations agree exactly with those of M. Küchenmeister.

In the muscles, and especially in the diaphragm, I afterwards found some yellowish-white bodies, which may easily be distinguished by the naked eye amongst the red muscular fibres. These, as M. Küchenmeister has stated, are only strayed individuals, which are never further developed.

The second sheep (No. 1) was killed on the 29th June. It presented nearly the same symptoms as the former. For the last few days of its existence, the right fore-leg was always bent, and in walking it could not support itself upon its hoofs.

In removing the brain from the cranium, a *Cœnurus* of the size of a small nut fell upon the dissecting-table. Two other *Cœnuri*, of the same size, were found in the right hemisphere, one above, the other behind; and in separating the hemispheres of the cerebellum, I found two others touching the quadrigeminal tubercles. The left lobe of the cerebellum also contained one. Eight were found in all. These *Cœnuri* were nearly all of the same size, except two or three which were scarcely larger than a cherry-stone.

Through the walls of the larger ones, the naked eye could distinguish some little whitish flakes,—the indications of so many heads (*scolex*). The smaller ones had no appearance of heads, nor of the place from which they were to rise.

The *Cœnuri* were enclosed in a membrane of recent formation,

produced by the inflammation of the neighbouring surfaces. This membrane is formed of fibro-plastic tissue, or of embryonal cellular tissue, covered with a multitude of elementary granulations.

At this period of their development, these worms are very curious. The scoleces were beginning to be formed; but, as I expected, they had as yet neither hooks nor suckers. The head, with its suckers and hooks, would only have begun to show itself in eight days afterwards.

In drawing one of these worms from its cavity and bringing it immediately upon the object-slide of the microscope, one is astonished at the great contractility of its walls. Its surface becomes wrinkled, its edges fringed, and the worm performs tolerably extended motions, which explain its action upon the cerebral mass; the substance of the brain in fact yields to the pressure of the parasite. Cells are distinctly seen in the walls of the vesicle, and it is to their contraction that its movements are due.

Beneath the walls of the vesicular worm, vessels are to be seen very distinctly, which anastomose like a capillary network; they correspond with the ordinary secretory apparatus of the Cestoid and Trematode worms.

When a scolex is about to be formed in the parent vesicle, the surface of the vesicle becomes wrinkled in a certain spot; these wrinkles become circular; the centre is then depressed, an eminence appears in the centre of the depression, and the future scolex is seen. Round the circular wrinkles, moreover, calcareous corpuscles may already be seen, similar to those which incrust the body of the scolex, but which do not exist on the hexacanthous embryo or proscœlex.

M. Eschricht writes to me as follows from Copenhagen, under date the 20th June:—

“The *Cœnurus-Tænia* taken from the dog on the 24th May at Bautzen, arrived at Copenhagen on the forenoon of the 26th, so that they could be swallowed by three sheep, within forty-eight hours of their removal from the intestines of the dog. One of the sheep has not been affected by them, but the other two were taken ill on the fifteenth and sixteenth days. They kept their heads turned to the right, and one could not rest except on the left side, without being seized with violent spasms. The inflammation of the brain was very distinct, the eyes very red. They both died on the fourth day, and I found a large quantity of small vesicles (2 or 3 mill. in diameter) in the pia mater and in the cortical substance. In the muscles in general, and in the walls of the heart, as well as beneath the skin, there were also vesicles full of a yellowish matter, which are probably, as supposed by MM. Küchenmeister and Harchner, aborted individuals.”

I have also received intelligence from Giessen. M. Leuckart has observed the symptoms to rise in the same period, and has found the *Cœnuri* in the same state of development.

To those who can believe that the preceding results are mere coincidences, I may observe, that the *Cœnurus* is so far from being common here, that I waited three years before I was able to obtain

one for my collection; and that as I can say beforehand I shall find *Cœnuri* of such a size and of such a degree of development, the question of coincidence is set at rest. It might as well be said, that the plants we gather do not arise from the seeds which have been put into the earth.—*Comptes Rendus*, July 3, 1854, p. 46.

THECACERA PENNIGERA.

To the Editors of the *Annals of Natural History*.

Weymouth, August 13, 1854.

GENTLEMEN,—I have the pleasure of announcing the capture by myself of two specimens of what I consider, without the slightest doubt, to be *Thecacera pennigera* of Montagu: see Brit. Moll. iii. p. 575. The only difference I can at present detect is in the number of appendages surrounding the vent. Montagu makes them five in number, whilst I make them three. I feel considerable doubt in any way questioning the accuracy of such an extraordinarily accurate observer as Montagu. I have placed the specimens in far more able hands than mine for description. The first specimen lived in my dredging vessel, in a bottle of salt water, for six weeks. It is a very lively animal, and fond of swimming foot upwards on the top of the water. This was obtained on the 31st July last. The second specimen I caught yesterday, whilst fishing in ten fathoms water, gravelly bottom, in company with Mr. H. Adams and two other friends; this was dispatched by post. I yesterday obtained, for the first time *this season*, *Antiopa cristata*; they were, however, small.

I am, Gentlemen, yours truly,

WILLIAM THOMPSON.

P.S.—Since writing the above, I have received a communication from Mr. Albany Hancock, to whom I had sent the specimen obtained on the 31st July, and who fully concurs with me as to its being the true *Thecacera pennigera*.

ATHYRIUM RHÆTICUM.

To the Editors of the *Annals of Natural History*.

British Museum, 28th August 1854.

GENTLEMEN,—The year before last I gathered at Eridge, near Tunbridge Wells, on a bit of ground from which trees had been recently removed, some plants of *Athyrium Filix-femina* with the erect habit, curled pinnules, and apparently linear frond, which are given by Mr. Moore, in the 2nd edition of his 'Handbook of British Ferns,' as the characteristics of *A. rhæticum*; I have since noticed in Scotland that plants of this species, growing on walls where they are exposed to the sun, frequently assume a similar habit; and on recently visiting a part of Tilgate Forest, where I had, two years since, gathered abundance of the normal state of *A. Filix-femina*, together with most luxuriant specimens of *Polypodium Phegopteris*, I found (the trees having been cleared away in the mean time) only the *rhæ-*